

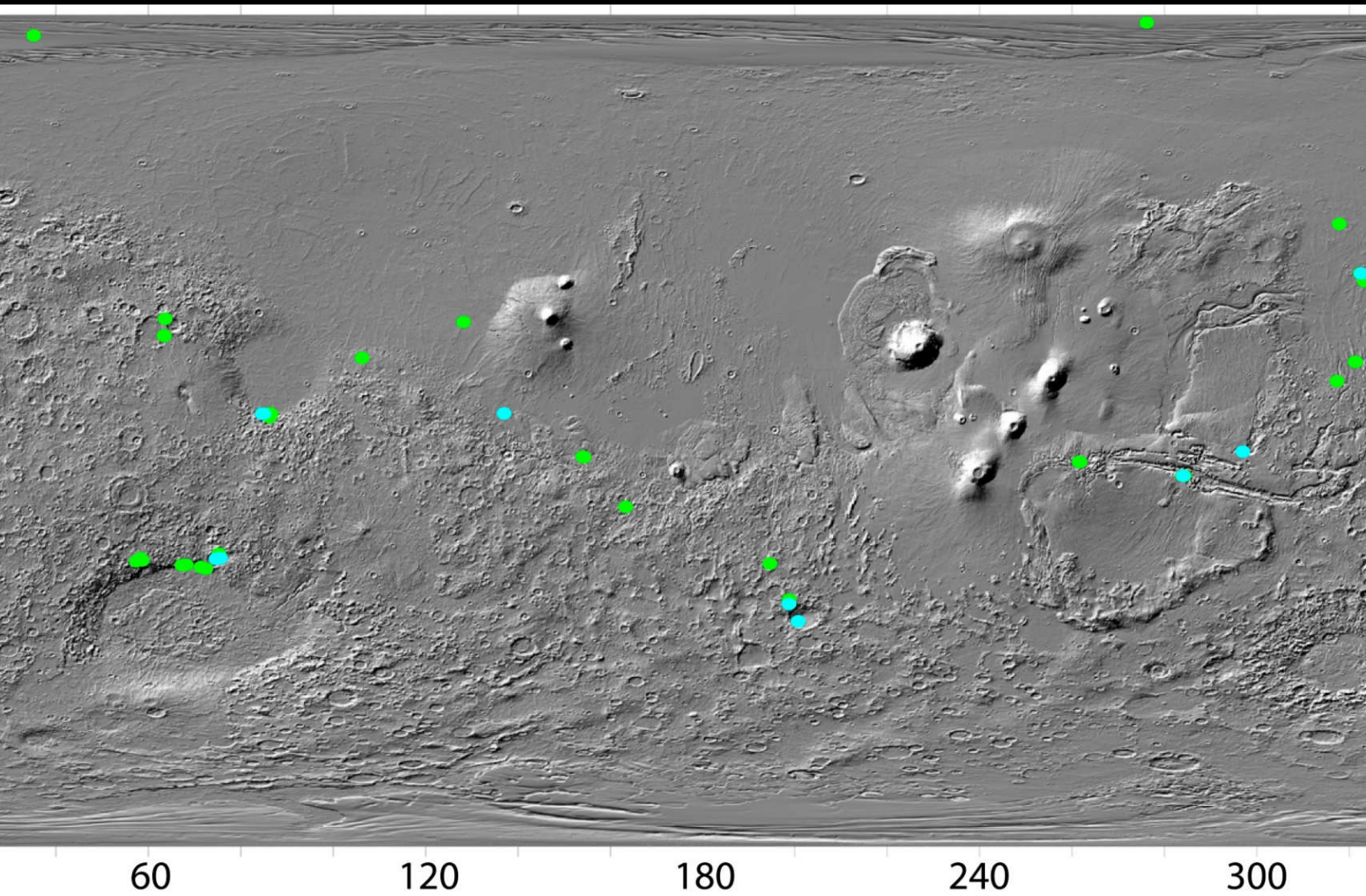
An incredible effort by instrument teams has gone into obtaining high quality data used to evaluate candidate sites

Orbital assets have a finite lifetime and there is no current plan for replacement of most capabilities. Use them before we lose them.

- Multiple calls for new sites resulted in 40+ candidates
- Includes a wide range of future mission scenarios
  - Many candidate ellipses are 10 km X 15 km, but others specified by proposer
- Call for Critical Data Products V and VI (CDP V and VI) yielded additional candidates (and some funding!)
- New sites queued for imaging by MRO and other orbital assets
- Mars Steering Committee assembled that represents international interest and broad scientific topics (Astrobiology to Sample Return and others)
- Steering Committee includes John Grant, Matt Golombek, and Nicolas Mangold (co-chairs), Steve Ruff, Dave Des Marais, Scott McLennan, Brad Jolliff, Jack Mustard, Ken Tanaka, Barb Sherwood-Lollar, Gian Ori, Ernst Hauber, John Bridges, Mark Sephton, David Fernandez Remolar,

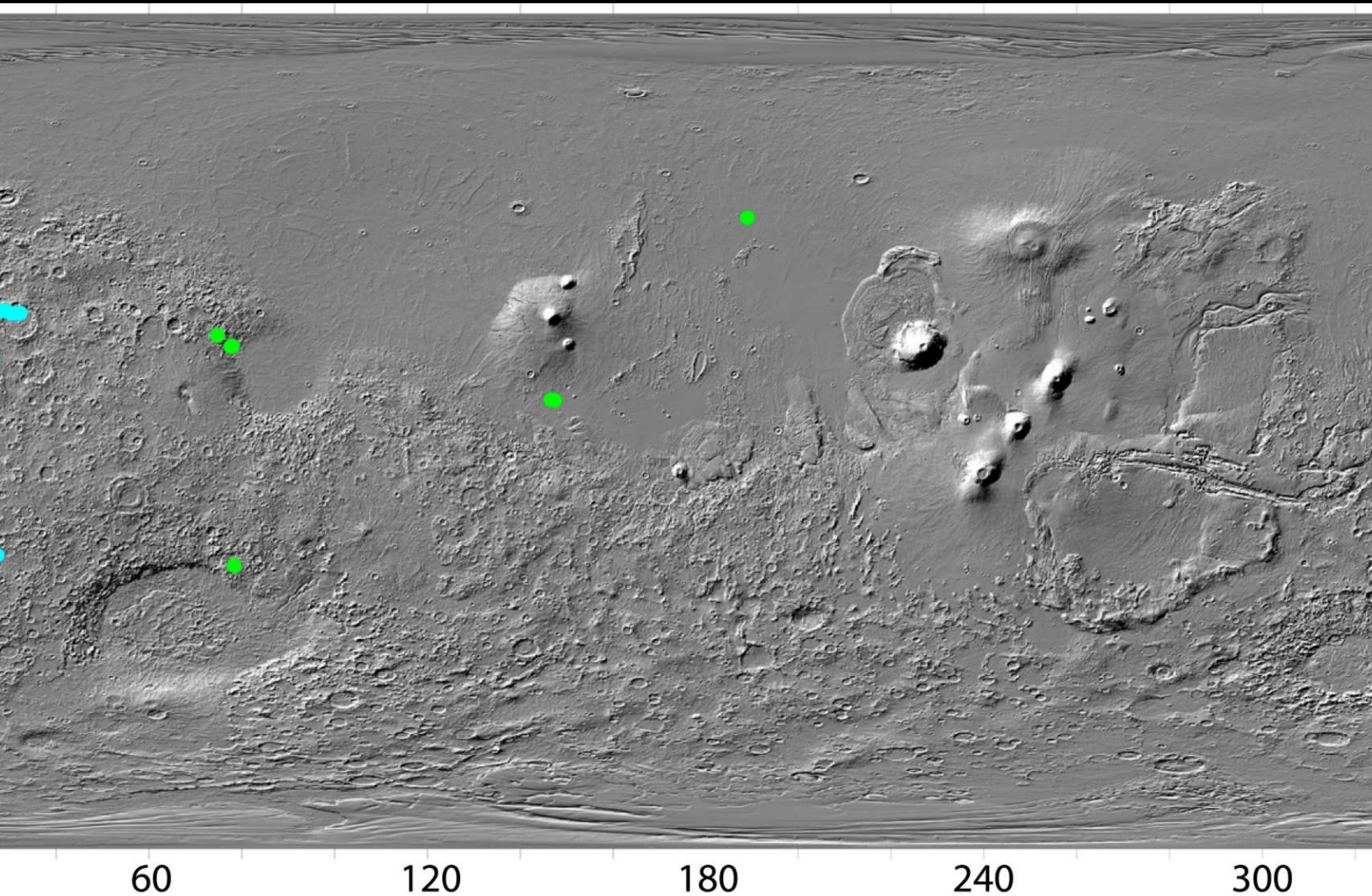


As of February 16, 2012





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# Nuts and Bolts.

- 40+ Candidate Sites Proposed
- Range of missions and ellipses
  - Some have appeared before (MER and MSL)
- Some sites have multiple, prioritized targets
- 137 HiRISE images (34 in past 7 months)
  - 86 HiRISE targets left to image
- CRISM Lead on targets during “cold cycles”
  - 40 FRTs at cold temperatures (future and referen

Remaining CRISM lead queued every 4th cycle

## *in Priority Order*

	Critically assess any evidence for past life or its chemical precursors; place detailed constraints on the past habitability and the potential preservation of the signs of life
	Quantitatively constrain the age, context and processes of accretion, early differentiation and magmatic and magnetic history of Mars.
	Reconstruct the history of surface and near-surface processes involving water.
	Constrain the magnitude, nature, timing, and origin of past planetary climate change.
	Assess potential environmental hazards to future human exploration
	Assess the history and significance of surface modifying processes including, but not limited to: impact, photochemical, volcanic, and
	Constrain the origin and evolution of the martian atmosphere, accounting for its elemental and isotopic composition with all inert species.
	Evaluate potential critical resources for future human explorers.
	Determine if the surface and near-surface materials contain

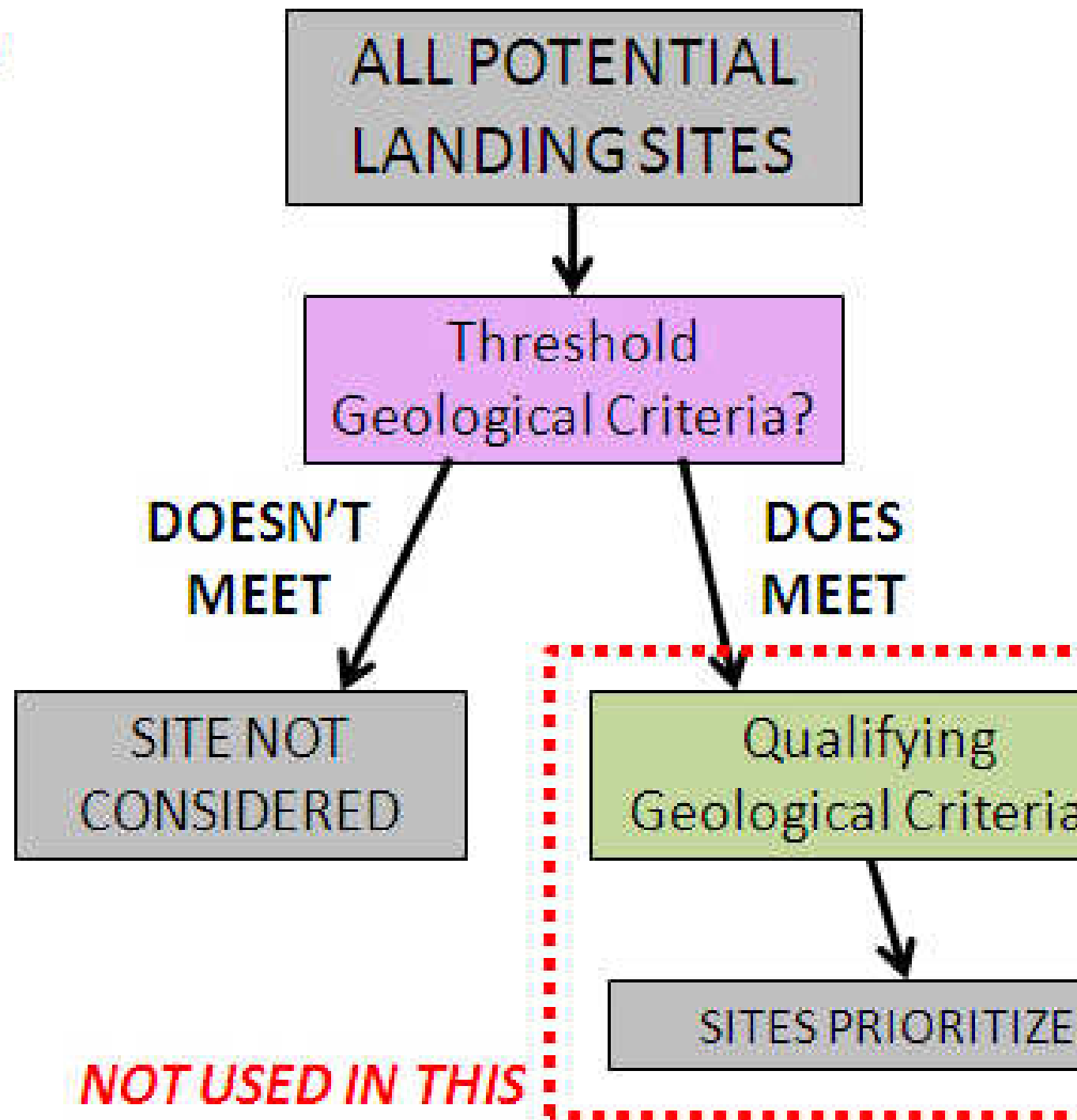
# Proposed Selection Criteria

Types of selection criteria can be applied:

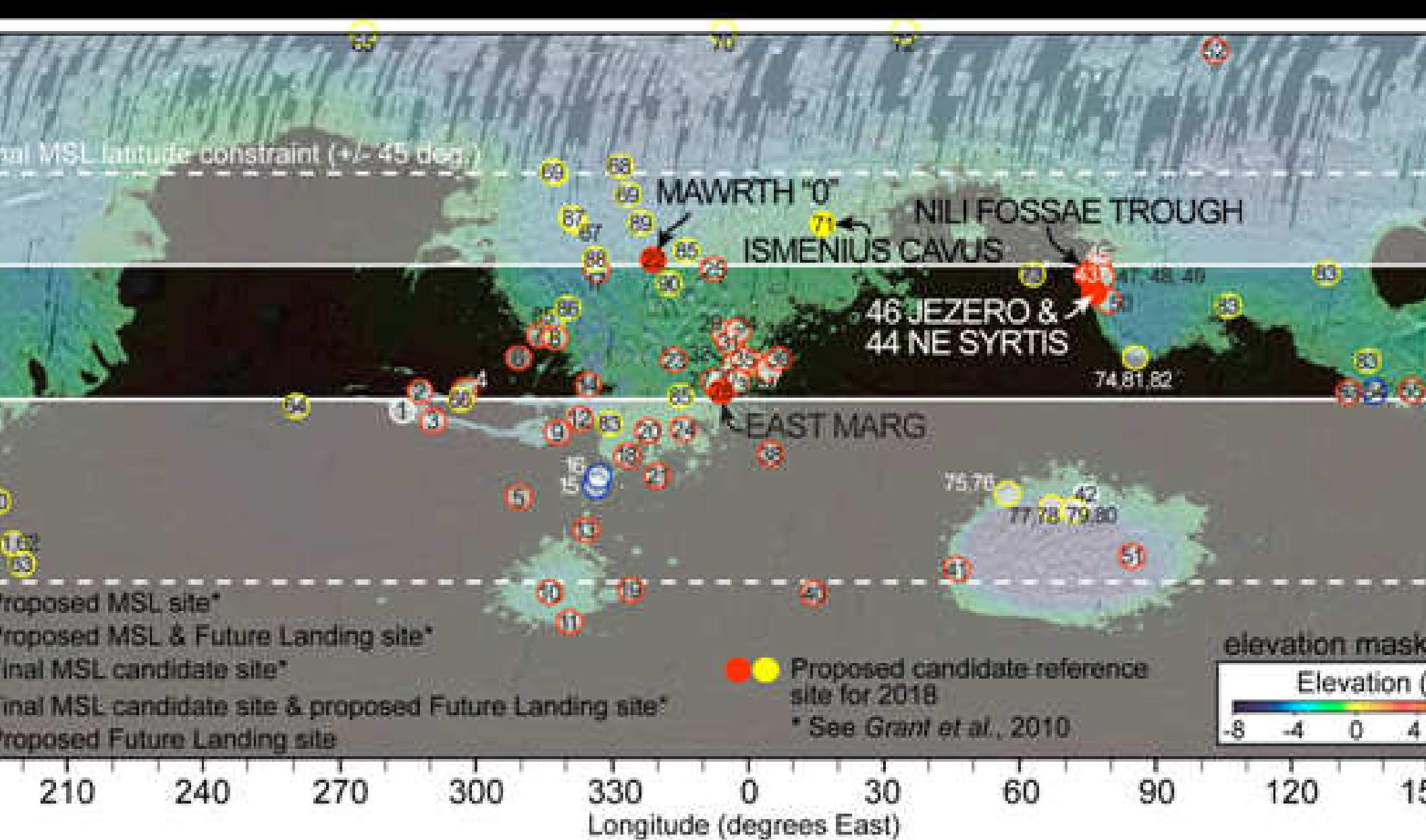
**"Threshold"** - sites must meet criteria to be considered

**"Ranking"** - used to prioritize the remaining sites

As more is learned about sites in the selection process, many may be dropped from consideration. To end up with at least one acceptable site, it is necessary to begin scientific selection process with a large array of candidates.







Map shows draft latitude & elevation constraints for the proposed MSR (sites are community-proposed: 59 sites from MSL landing site process, 26 sites from CDP future landing sites. Selected sites are 7 E2E-iSAG reference sites that may meet science objectives.



BE POSSIBLE TO MEET ALL 8 PROPOSED MSR SCIENTIFIC OBJECTIVES AT ANY OF THESE

	Lat (°N)	Lon (°E)	Elev. (km)	The Sedimentary/hydrothermal story	The igneous story
er	-6	354	-1	In the channeled Noachian uplands south of Meridiani Planum is a small, shallow basin with an exposure of possible chlorides stratigraphically overlain by an eroding unit with very strong CRISM and even TES signatures of phyllosilicates.	The rocks appear to be capped by a thin unit of Noachian age.
ter	-14	175	-2	The Noachian-aged Columbia Hills contain outcrops of opaline silica likely produced from hot springs or geysers and outcrops rich in Mg-Fe carbonates likely precipitated from carbonate-bearing solutions. Sulfate-rich soils and outcrops also are present.	Extensive unaltered Hesperian basalts embay the Noachian Crater. Also present are several different rock types with minimal alteration.
ter	18	78	-3	Delta with incorporated phyllosilicates and carbonates along west margin of crater. The crater formed in Noachian olivine and pyroxene-rich crust.	The crater floor has a more recent Hesperian that looks like fresh flows. Would land on volcanic material to delta.
e 0	25	339	-3	Layered Al and Fe/Mg Phyllosilicates in poorly understood setting. Possible mud volcano in the vicinity of ellipse. Land on science for exobiology.	Mafic material present in ellipse may be partly altered. Unaltered Hesperian volcanic at ~30 km.
	16	77	-2	Extensive and diverse mineral assemblages within ellipse in Hesperian Syrtis Major volcanic region. Maybe water-lain deposits or in situ alteration. Likely go to required for all materials of exobiological interest.	Hesperian Syrtis Major volcanic region.
e	21	75	-1	Widespread altered materials, as ejecta at eastern side of ellipse, in place to west of ellipse.	Land on unaltered Hesperian volcanic material.
				Single site to combine clay-bearing paleolake sediments and current	

Workshop Program is Posted at:  
<http://marsnext.jpl.nasa.gov/workshops/index.cfm>  
Workshop will be on Webex

...and for those of you staying around this afternoon...

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Steven F. Udvar-Hazy Center

The Steven F. Udvar-Hazy Center near Washington Dulles International Airport is the companion facility to the Museum on the National Mall. The building opened in December, 2003, and provides enough space for the Smithsonian to display the thousands of aviation and space artifacts that cannot be exhibited on the National Mall. The two sites together showcase the largest collection of aviation and space artifacts in the world.



Visitors to the National Air and Space Museum's Steven F. Udvar-Hazy Center admire the Monocoupe 110 Special Little Butch and other aircraft hanging from 10-story-high trusses.  
*Credit: Photo by Carolyn Russo*

The Center was named in honor of its major donor, and features the large Boeing Aviation Hangar in which aircraft are displayed on three levels. Visitors can walk among



Udvar-Hazy Center

Steven F. Udvar-Hazy Center  
14390 Air & Space Museum  
Parkway [map]  
Chantilly, VA 20151 USA  
Info: 703-572-4118